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STINKING SMUT OR BUNT OF WHEAT

This smut is scarcely visible at harvest, unless one looks closely for it. The affected heads are almost normal except that they have a bleached look, are usually rather short, and the chaff sticks out somewhat straight from the head. The grains are darker in color, short and plump, light in weight and crumble readily, as the whole interior is filled with black smut.

These smut balls are broken up in threshing, and if they are plentiful in the grain there is a distinct odor produced which accounts for the name Stinking Smut. The black dust-like spores of which the smut balls are composed are dispersed everywhere, and many stick to the sound wheat grains. It is these that cause smut again when this grain is used for seed, but we can readily prevent the disease by treating the seed with some substance which kills these adherent spores without injuring the wheat.

The hot water treatment necessary to prevent loose smut will also control stinking smut. Bluestone and formaldehyde solutions have been much used in the past but both have a tendency to injure germination in certain cases. More recently copper carbonate dust has come into extensive use for seed treatment. Besides its proven effectiveness in smut control this dust is noninjurious; it is very easy to apply; treatment may be given at any time and the grain stored till sown; and since there is no swelling of the grain as is the case in liquid solutions, dust treatment avoids the necessity for drying out the grain or readjusting the seeder to take care of the increased volume. In addition to the above there have recently come on the market various organic mercury compounds under the trade names of uspulun, semesan, germisan, etc. These have shown marked efficiency in smut control and it is also claimed that not only do they produce no injury to the seed but that they actually have a definite stimulating effect. This advantage may help to offset their comparatively high cost. They are usually used in solution like formaldehyde but in some cases are available in dust form.

Detailed instructions for each of the above seed treatments are given except for bluestone which is no longer recommended.

1. Formaldehyde Methods

The Soak Method:

The seed is soaked for five minutes in a solution of one pint (or pound) of commercial formaldehyde in fifty gallons of water. The commercial solutions are usually sold in pint bottles, and should have a guaranteed strength of forty percent formaldehyde gas in water. After treatment, drain and dry the seed in the sun, and keep dry until sown, and do not permit the grain to come in contact with anything that will contaminate it again. A good plan is to use a barrel with thirty gallons of the solution, and soak the grain-bag and all - moving it about so that every grain is thoroughly wet.

The Sprinkle Method:

The seed wheat is piled on a clean floor, and as it is shovelled from one pile to another it is sprinkled with a solution of formaldehyde, one pint in fifty gallons. A sprinkling can is commonly used for the purpose. After this is done shovel the seed so that every grain is thoroughly wet. Use from three quarts to one gallon per bushel. Then cover the pile for two hours with sacking or canvas to keep in the fumes. Dry by shovelling out in thin layers.

The Spray Method:

A mixture of formaldehyde and water, equal parts, is put in a small spraying apparatus. The seed is shovelled from one pile to another, and as this is done the solution is sprayed over it at the rate of about one pint per twenty bushels. Mix well, and cover with canvas or sacking for two hours, after which it is ready for sowing. The great advantage of this method is that it does not swell the grain, neither does it require the extra labor of spreading out to dry. This method has certain advantages, but it is not well established whether it is safe to use under all conditions.

2. Copper Carbonate Dust

A specially prepared finely ground dust is used for the treatment. The dust is used at the rate of two to three ounces per bushel, the seed grain being shaken with the dust till each grain is well covered with dust particles. While a fair distribution can be obtained by rolling a barrel half filled with the seed grain on a floor for the equivalent of about 16 complete turns, the best and easiest method of incorporating the dust is with an ordinary revolving barrel churn. 40 - 60 revolutions gives a very effective coating of dust on each grain.

Copper carbonate dust treatment should be carried out in moving air because the dust causes considerable irritation of nose, throat, and lungs, and is slightly poisonous.

3. The Organic Mercury Compounds

As mentioned above, these preparations are sold under several trade names and come ready for use in dust form, or ready to mix with water when designed for solutions. The containers usually bear full directions for use, and these instructions should be followed closely to obtain the best results.